

CLAIMS

1. A rotatably supporting device for correcting
balance of a rotating body, provided in a balance
5 correcting device measuring an unbalance force, for
rotatably supporting the rotating body, comprising:

a journal supporting part having a mandrel that
rotatably supports the rotating body in a floating state
about a vertical axis;

10 a thrust supporting part that is provided at a lower
end portion of the mandrel and supports a bottom part of
the rotating body in the floating state;

a first fluid supply passage that supplies a fluid
for floating between the mandrel and a rotation support
15 hole of the rotating body;

an annular groove provided in the thrust supporting
part so as to face the bottom part of the rotating body;
and

a second fluid supply passage that communicates with
20 the annular groove to supply a fluid thereto for floating
the rotating body.

2. A rotatably supporting device according to claim
1, instead of the annular groove, comprising an annular
25 projection portion that is provided in an outer peripheral
portion of the thrust supporting part or the rotating body,
and that forms a gap smaller than a gap between a lower

surface of the bottom part of the rotating body and an upper surface of the thrust supporting part in the floating state of the rotating body,

wherein the second fluid supply passage is provided
5 so as to open on the thrust supporting part.

3. A rotatably supporting device according to claim 1, instead of the annular groove, comprising an annular throttle portion that is provided in one of a surface of
10 the thrust supporting part and a surface of the rotating body facing each other, and that forms a gap smaller than a gap between a lower surface of the bottom part of the rotating body and an upper surface of the thrust supporting part in the floating state of the rotating body.

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4. A rotatably supporting device according to claim 3, wherein the second fluid supply passage is provided so as to open on the thrust supporting part, in addition to providing the throttle portion.

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5. A rotatably supporting device according to claim 1, wherein instead of comprising the annular groove, the second fluid supply passage opens at a plurality of positions on the thrust supporting part, and

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a half distance between centers of the adjacent openings of the second fluid supply passage is smaller than a distance from the center of each of the openings to an

open outer peripheral end of the thrust supporting part.

6. A rotatably supporting device according to claim
1, configured to switch the fluid between a compressive
5 fluid and a non-compressible fluid to be supplied to the
first fluid supply passage and/or the second fluid supply
passage between

7. A rotatably supporting device for correcting
10 balance of a rotating body, provided in a balance
correcting device measuring an unbalance force, for
rotatably supporting the rotating body, comprising:

a journal supporting part having a mandrel that
rotatably supports the rotating body in a floating state
15 about a vertical axis;

a thrust supporting part that is provided at a lower
end portion of the mandrel and supports a bottom part of
the rotating body in the floating state; and

a fluid supply passage that supplies a fluid for
20 floating between the mandrel and a rotation support hole of
the rotating body;

wherein a space part is formed in at least either one
of the mandrel and the rotation support hole for widening a
space other than at a supporting portion.

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8. A rotatably supporting device according to claim
7, wherein a second fluid supply passage is provided for

supplying the non-compressive fluid for floating the rotating body to the thrust supporting part facing the bottom part of the rotating body.

5 9. A rotatably supporting device according to claim 7, wherein a discharge path communicated with the space part is provided for discharging the inside non-compressive fluid.

10 10. A rotatably supporting device according claim 7, wherein for discharging the non-compressive fluid, a second discharge path is provided to open upward on a topmost supporting portion between the mandrel and the rotation support hole of the rotating body.

15 11. A rotatably supporting device according to claim 9 or 10, wherein discharge means for forcibly discharging the non-compressive fluid is provided at the discharge path and/or the second discharge path.

20 12. A rotatably supporting device according to claim 7, wherein recovery means for recovering the non-compressive fluid is provided at a position confronting an outer periphery of the thrust supporting part.

25 13. A rotatably supporting device according to claim 7, wherein an annular projection portion is provided

between the thrust supporting part and the rotating body,
for holding the non-compressive fluid.

14. A rotatably supporting device according to claim
5 7, wherein an annular groove is provided in a front end
portion of the fluid supply passage of the journal
supporting part.